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United States
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Soil
Conservation
Service



Soil & Water Conservation News

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Small Community and Rural Development

by Robert G. Halstead

The Congress, in its 1972 Rural Development Act, recognized the need for a revitalization of rural America. In Section 603(b) it provided that: "The Secretary of Agriculture is authorized and directed to provide leadership and coordination within the executive branch and shall assume responsibility for coordinating a nationwide rural development program utilizing the services of executive branch departments and agencies and the agencies, bureaus, offices, and services of the Department of Agriculture in coordination with rural development

programs of State and local governments."

In a revision of the Department's Statement on Rural Development dated March 21, 1979, Secretary Bergland established the following rural development goals for the Department:

1. Improve rural income levels and increase rural employment opportunities;
2. Improve the access of rural residents to adequate housing and essential community facilities and services;
3. Provide a more equitable distribution of opportunities through targeting efforts on distressed areas, communities, and people;
4. Create and implement a process for involving the private sector and local, State, and Federal agencies in establishing policies and programs

that affect rural areas;

5. Strengthen the planning, management, and decisionmaking capacity of public and private institutions concerned with economic opportunity and quality of life in rural America.

The policy established and contained in that statement required that, "Each agency of the Department that conducts programs related to rural development will give aggressive leadership and assistance to meeting the national rural development goals."

In order that the efforts of the Department's many agencies be coordinated, the Secretary created the U.S. Department of Agriculture Rural Development Coordinating Committee. The committee coordinates the rural development efforts at the National Office level as well as facilitates the

Continued on next page.

RCA Update

by Tom Levermann

The Soil and Water Resources Conservation Act of 1977 (RCA) produced one of the largest public participation efforts in Federal Government history. During the 60-day public review period earlier this year, more than 118,000 people responded to the U.S. Department of Agriculture's call to comment on draft documents outlining proposed conservation objectives, activities, and strategies.

Public comment received during the review period reflects the views of organized groups, governmental

agencies at all levels, urban and rural populations, and individuals from all parts of the Nation. In May, a special team was assembled to analyze the 1,513,556 public comments received during the review period. The team prepared a report of public comments which is being used by the RCA Coordinating Committee to prepare USDA's proposed national conservation program.

About a third of all responses were personal letters, most were response forms, and nearly 6 percent were petitions.

The public's comments centered primarily on three topics: the proposed soil and water conservation objectives, the conservation activities, and the seven proposed alternative strategies. The rest of the comments addressed other topics such as USDA programs, public participation

activities, and related issues.

The conservation objectives are those very specific and measurable items USDA intends to accomplish through its soil and water conservation programs. For example, reducing soil erosion would increase the soil's sustained productive capacity, reduce production costs, and provide such corollary benefits as improved water quality.

The conservation activities are those physical, technical, and administrative requirements needed to operate and accomplish a national soil and water conservation program. They would include collecting data on the Nation's resources, providing information, program funding, technical assistance, installation of conservation practices, and research, information, and education.

Continued on next page.

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Small Community cont.

efforts of the USDA State Rural Development Committees.

President Carter, in his December 20, 1979, Small Community and Rural Development Policy, called for the creation of a rural development partnership with the States. He encouraged the Governors to create State Rural Development Councils. He then directed the Federal Regional Councils to create Rural Development Task Forces to aid in these efforts, and USDA agency heads in each State to participate on the State Rural Development Councils at the Governors' invitation.

The Soil Conservation Service, in the development of its more detailed policy, established three main objectives:

- Helping improve community decisionmaking by (1) aiding community leaders to develop and evaluate alternative decisions affecting natural resources, and (2) aiding community leaders to identify resource development opportunities and resource limitations or hazards;
- Aiding communities and residents implement their rural development plans by (1) working with community

leaders and Federal and State agencies to insure that their actions complement local development plans, and (2) helping rural communities to identify all public and private measures to assist in the implementation of their rural development plans;

- Making all USDA and other Federal programs more accessible to rural residents by (1) expanding SCS's expertise in dealing with volunteers and other manpower programs for training and employment in rural areas for natural resource related jobs, and (2) targeting assistance to underdeveloped and/or distressed areas, including communities and individuals affected by natural disasters.

The USDA Rural Development Policy is an expression, at the national level, that there is much that needs to be done. The policy is an opportunity to focus on a large number of State and local problems and certain national problems.

In order to carry out its objectives, SCS will continue to provide technical information and assistance through soil and water conservation districts and the resource conservation and development program primarily in rural areas.

The Rural Development Staff, a part of State and Local Operations, was created earlier this year to serve as SCS's rural development advocate. It reviews Agency and Departmental policies and programs to find opportunities whereby positive rural development efforts can be made through State and local field offices. It has lead responsibility for SCS participation with and assistance to small family farmers, American Indians, and Alaska Natives in conservation activities. The staff provides liaison on pertinent interagency, Departmental, and White House committees and task groups to insure that programs developed for use at the local level are applicable and practical.

SCS policies in rural development emphasize aiding local people to identify and organize community leadership in planning for their rural development. The supportive nature of this assistance provides for the maximum in local leadership and the availability of technical assistance not otherwise available through the resources of small communities.

Robert G. Halstead,
associate deputy chief, State and Local Operations,
SCS, Washington, D.C.

RCA Update. cont.

The seven proposed alternative strategies represent various organizational approaches to providing program benefits to the public. The alternatives were (1) redirection of present programs, (2) conservation performance bonus, (3) natural resource contracts, (4) regional resource project approach, (5) State leadership, (6) cross compliance, and (7) regulatory emphasis. More than half (765,759) of all comments received were directed to the alternative strategies.

Generally, respondents preferred

alternatives that could be integrated into a program that is voluntary and locally controlled but receives liberal Federal support. The listing of alternative strategies is shown in the order of the public's preferences. Respondents identifying themselves as farmers or ranchers who were not affiliated with organizations generally preferred the alternatives in the same order. Only three strategies—redirecting present programs, conservation performance bonuses, and natural resource contracts—were supported in a majority of the comments from farmers and ranchers.

Comments on activities designed to maintain resources expressed general approval of specific conservation measures. Many responses requested increased cost sharing, technical assistance, and research. In addition, respondents said that the Government could encourage conservation by undertaking a more vigorous program to educate the public about the importance of conservation. The general public attitude is that if citizens really understood what the conservation needs were and how to achieve them, the right choices would be made by the individual.

Bob Bergland
Secretary of Agriculture

Norman A. Berg, Chief
Soil Conservation Service

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Editor, Judith E. Ladd

Associate Editor, Nancy M. Garlitz

Editorial Assistant, Ann McQuitty

Design Consultant, Christopher Lozos

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Comments:

from the SCS Chief

In response to initiatives by the President, Congress, and Secretary of Agriculture Bob Bergland (see article beginning on page 1), we in the Soil Conservation Service must accelerate our technical assistance in developing areas and insure that rural development needs are considered in all of our programs.

For many years, SCS has been providing assistance to small communities and rural areas through such efforts as small watershed projects, conservation planning, flood hazard studies, and resource conservation and development measures.

In recognition of our responsibilities to help improve the quality of life in rural America, I now have a rural development staff in the National Office as part of State and Local Operations. The staff is charged with the leadership of SCS's implementation of the Secretary's Rural Development Policy and is assisting SCS State Conservationists and all SCS program managers in their activities which contribute to rural development.

The three main objectives of SCS in rural development are to: (1) help improve community decisionmaking, (2) help communities and residents implement their rural development plans, and (3) make all USDA and other Federal programs more accessible to rural residents.

The SCS role in the rural development effort is an important one, for natural resource development is the foundation for rural development. We must work with rural people to increase their capacity for community action—helping them to help themselves. They need resource planning information, technical expertise, and organizational experience—confidence in their ability to do things together.

We in SCS are in a prime position to work with other Federal, State, and local agencies and groups in giving rural America the help it needs.



The conservation objectives received far more support than opposition. The public strongly supported the objectives to reduce soil erosion, maintain soil quality, retain prime farmlands, use organic waste, and increase agricultural energy production.

The least popular objective, to reduce to zero the net loss of wetlands to agriculture, drew less than 50 percent supporting comments. Yet, it was supported 3 to 2 over those objecting to it.

The objectives to increase instream flows, reduce salinity, increase irriga-

tion efficiency, and reduce loss of wetlands all received about 20 percent "neutral" comments.

An issue of concern for people from all over the Nation was the conversion of farmland to other, nonagricultural uses. Only in the Northeast, however, did people express support for Government regulation to prevent such land conversion.

USDA and the RCA coordinating committee are progressing with the development of several soil and water conservation programs. Using the public's comments and additional information on the status, condition,

and trends of our Nation's non-Federal soil and water resources, the Department will soon present to the public these conservation programs, including one identified as a "preferred" alternative. The public will have the opportunity to review these programs, the final conservation objectives, and related activities and make their comments known to USDA during another public review period.

Tom Levermann,
member, RCA Public Participation Team, SCS,
Washington, D.C.

Hawaii Rancher Attends Secretary Bergland's Advisory Committee Meeting

The U.S. Department of Agriculture's Citizens Advisory Committee on Equal Opportunity met in September in Washington, D.C. The committee advises Secretary of Agriculture Bob Bergland on the effectiveness of the Department's practices and procedures which promote or impede equal opportunity in agriculture.

It recommends changes in the Department's rules, regulations, and orders to assure that USDA activities are free from discrimination based on race, color, sex, religion, national origin, age, or marital status.

Committee members serve for 2 years without pay, but are compensated for travel expenses.

One of the committee members is Carey Taketa, a cattle rancher from Hawaii. Assistant Secretary of Agriculture Joan S. Wallace, who chairs the committee, toured Taketa's ranch during a visit to Hawaii and submitted the young woman's name for consideration as a committee member.

Taketa has been interested in ranching since she was a little girl. Throughout her childhood, she helped her grandfather on his Waianae Valley ranch. She obtained her B.S. degree in Animal Science from the University of Hawaii. When her grandfather died 4 years ago, she was the only one of nine grandchildren who wanted to carry on the ranching operations.

Taketa runs the 1,300-acre ranch with the help of only one ranch hand. She runs 500 head of Hereford cattle on the Waianae pastures and on a second 400-acre spread in the Maunawili Valley. Working on im-

proving her herd, she has imported a Beefmaster strain to cross with the Herefords.

Soon after taking on the ranch operation, Taketa became a cooperator with the West Oahu Soil and Water Conservation District and is now in her first term as district director.

When asked what advice she has for someone who wants to go into agriculture, she replied, "The first advice I have is that they should go into it not expecting to make money, but expecting to have a really rich and independent life. And then I would say that people should investigate any avenue they can for assistance—technical, educational, financial—because even if you don't learn anything from a particular agency, you're going to meet other people and make contacts. The reason I'm a member of the advisory committee is because the Soil Conservation Service people in Honolulu brought Joan Wallace out to my ranch on Oahu.

"I would also tell someone starting out if you don't find the information you want from one source, don't give up," she continued. "Because when you're dealing with the Government you have to realize you're dealing with people. Some people aren't as willing to help as others, and just because they have that attitude doesn't mean the next person will have the same attitude.

"Also, you have to figure out ways to do things that meet your needs and don't cost money. For example, if you have an old piece of machinery that needs repair, take a mechanics course to learn how to fix it—don't buy every new piece of machinery that comes along.

"Any time a young person can get into ranching, farming, or any kind of business and make a go of it, I think

it's terrific; but you have to love what you're doing.

"As far as technical assistance is concerned," Taketa said, "the SCS plant materials center in Hawaii has been really helpful in finding suitable grasses. Also, SCS Soil Conservationist Max Coray comes out to visit me once in awhile. I don't always listen to his suggestions, but he has really helped because he's given me an opportunity I wouldn't otherwise have had to test different kinds of grasses to try to improve my pastures.

"Fred Gross, our district chairman, does a terrific job. If it weren't for him, I don't think anybody would ever hear of our district. He's very concerned about small farmers and likes to see them get a good start. At the same time, he likes to see them get started in practicing good conservation.

"Finally, when you get to the grass roots level, when you go to someone for help, it doesn't matter what color they are. What you want is a person who knows what they're doing and who is willing to help you."

Phyllis Charles,
public information officer, SCS, Honolulu, Hawaii

National Farm-City Week

President Carter has designated November 21 through 27 as National Farm-City Week. This year's theme is "Farm and City, Partners in Progress—Key to the Future."

According to the President's proclamation announcing Farm-City Week, Americans have tended to overlook the interdependence of farms, which produce the food, and cities, which process and deliver it.

San Francisco Bay Area Pollution Report

A new report on nonpoint source pollution control needs in the San Francisco Bay area has been published by 14 resource conservation districts (RCD's) in Northern California.

The report was developed by the Council of Bay Area Resource Conservation Districts under a \$38,000 contract with the Association of Bay Area Governments, the agency that handles local 208 water quality planning.

Included in the document, which was written by a private resource analysis firm, are pollution control needs for agricultural lands and urban fringe areas. Technical information, including county maps showing areas of critical erosion and salinity, was supplied by the Soil Conservation Service. Heading the effort was William H. Barbour, president of the Bay Area Council of RCD's.

This is the first nonpoint source pollution control report in California to be prepared under conservation district leadership.

Water quality in San Francisco Bay has improved significantly during the last 25 years, according to SCS Resource Conservationist Robert S. Miller, who said it used to be "a cesspool."

"Primary sewage is no longer fed into the bay and industrial polluters have quit dumping toxic wastes," Miller said. "Shellfish are beginning to come back and the objectionable odors are gone."

Miller said the new report pinpoints remaining sources of nonpoint pollution, including sediment, and points

the way for action by affected counties and municipalities.

According to the report, the area's most serious sediment loads are coming from construction activities, which "can increase soil erosion rates from 10 to 2,000 times over pre-construction conditions."

Soils in the hilly urban fringe and ridgelands where much of the development is occurring have "poor permeability and rapid surface runoff," the report states. Subdivisions and 2- and 4-acre "ranchettes" are continuing to spread in these erosion-prone areas.

In addition, the report says, "significant erosion has been generated by the construction of access and

utility roads, firepaths, housing pads, and inadequate surface runoff control facilities."

The council report finds that pollution from animal wastes, and from dairies in particular, is no longer critical in the bay area, since most dairies installed adequate waste management systems after statewide water quality guidelines were set up in 1973.

As the next step, council members plan to contract with the Association of Bay Area Governments for an employee to review developers' plans for adequacy of erosion control.

Hubert W. Kelley, Jr.,
director, Information and Public Affairs, SCS,
Washington, D.C.

A new nonpoint source pollution report for the San Francisco Bay area indicates that serious sediment loads are now coming from construction activities in hilly, erosion-prone areas such as this development in Napa.



Dairies such as this one in Santa Rosa are no longer the polluters they once were since most have installed adequate waste management systems.



Helping Nature Take Its Course

The Salt River in western Wyoming was once one of the best cutthroat trout streams in the country. The streambanks were lined with willows, and streambank erosion was minimal.

In the forties and fifties, farmers and ranchers along the Salt River removed hundreds of acres of willows and planted hay and small grain crops right up to the water's edge in many places. Streambank erosion accelerated dramatically.

In 1971 and 1972, a record snow-pack in the watershed, coupled with rapid spring runoff, caused extensive streambank erosion, heavy sedimentation of the streambed, severe flooding, and many channel changes. The trout population declined.

The Soil Conservation Service, Wyoming Game and Fish Department, and many individuals tried numerous methods of control and correction. Most of them proved either ineffective or extremely costly. Finally, in 1977, primarily through the effort of the Western Wyoming Re-

source Conservation and Development (RC&D) Council, an RC&D measure was initiated for critical area treatment along a 12-mile section of the Salt River. Star Valley Conservation District and Wyoming Game and Fish Department jointly sponsored the measure.

The sponsors' aim was to work with nature as much as possible. They wanted no interference with the natural flow of the river.

Control measures consisted principally of fresh-cut evergreen trees cabled together and anchored into solid banks (riverbank revetment), and small rock jetties (rock fills) placed at the head of some revetments to prevent the current from getting behind the barrier. As an experiment, other scrubby barrier trees were cut and staked parallel to the bank as a natural fence to keep livestock away from the river's edge.

Tree limbs serve as mini-barriers to the water and slow it down along the banks where damaging erosion is taking place. They redirect the stream's flow toward the center of the river which tends to deepen the channel. Both landowners and Game

and Fish officials have seen a definite stabilization of the riverbank near tree barricades.

SCS engineers did the design and inspection work. Conservation district supervisors obtained construction and maintenance easements and rights-of-way, and they accepted operation and maintenance responsibilities. Contracts were let on the project and work began in July 1979. All work was completed in 1979, except willow plantings, which will be completed by local groups and the Game and Fish Department.

The control measures were installed at a fraction of the cost of conventional riprap. Streambank protection with tree revetment was provided for \$3 per foot. In comparison, the cost of a streambank protection project completed on the Nowood River using rock riprap was \$18 per foot (as the name implies, no wood was available). RC&D funds provided 75 percent of the cost of installation. Wyoming Game and Fish Department provided the other 25 percent. Total cost of the project was \$41,250.

While these measures have a shorter life expectancy (10 years)

Drought-Inspired Spring Development System

A spring development system is a "big seller" this year, 3 years after the end of the California drought that inspired its widespread installation in Mendocino County.

The system's low development cost, easy installation, maintenance-free long life, and energy efficiency are the qualities that continue to make it attractive even in today's less disastrous times.

The method grew out of California's 1977-78 drought, when Mendocino County sheep and cattle ranchers

saw perennial streams and water-holes run dry. Faced with the prospect of selling off herds at depressed market prices, ranchers searched for ways to develop additional water sources for their parched lands.

The key to the low-cost system is the use of perforated PVC pipe as underground springwater collectors. Ukiah Rancher Herb Singley, while laying plastic irrigation and drain lines for his pear orchard, decided to use materials he had on hand to install a spring development.

Singley contacted George Wilson, a retired Soil Conservation Service

soil conservationist who had worked on spring developments in the area since the early 1930's, to help design the system.

With a hand-held power saw, they cut a series of 6-inch slits lengthwise into one side of a 2½-foot long, 4-inch piece of PVC pipe. After glueing caps to the pipe ends, they drilled a ¾-inch hole into one cap to hold a 3-inch nipple piece.

They placed the assembled collector pipe, slits downward, on 20 inches of washed pea gravel poured into a 3- by 4-foot trench, dug 5 feet deep into a hillside area that was wet—indicating an underground

than the rock riprap, they are esthetically pleasing and provide excellent cover for fish and wildlife. The measure sponsors anticipate that within 10 years the work done will help banks stabilize and permit protective natural revegetation to be established. In addition, controlling the streambank erosion will reduce sediment loading in the reservoir downstream.

Already local anglers have noticed that the fishing has improved, especially near the revetments.

After seeing the success of the erosion control work along this 12-mile stretch, the Star Valley Conservation District and the Wyoming Game and Fish Department sent another request to the RC&D Council for a similar job on a 15-mile stretch below the project just completed. The Council approved the request, and the project plan for the lower Salt River has been completed.

Ken L. Rogers,
district conservationist, SCS, Afton, Wyo.

Dottie Laber,
former public information officer, SCS,
Casper, Wyo.

Betty D. Holbrook,
public information specialist, SCS, Casper, Wyo.

To protect the banks of Wyoming's Salt River from erosion, cut evergreen trees were cabled together and anchored into solid portions of the banks. The tree limbs slow down the river's flow and redirect it toward the center of the river, which helps to deepen the channel.



spring. They used a 1/2-inch plastic pipe to run from the collector nipple down the hillside to a watering trough, then covered the collector with more gravel, a plastic tarp, and topsoil.

The system worked and, with the help of Federal drought relief funds, Singley installed 12 collectors and troughs. As word of the system's success spread, more than 70 were installed around Mendocino County—saving ranchers an estimated \$175,000 by allowing them to maintain herd sizes during the period of low prices.

Since the drought ended, the Men-

docino County Resource Conservation District has continued to get requests for an informational packet with detailed specifications on the spring development method. More than 300 copies of the packet, written by Wilson, have been distributed. Detailed descriptions of this type of spring development are also available in the SCS Engineering Field Manual.

Singley notes that the original systems still are operating at up to a gallon a minute with virtually no maintenance. "Put them in right and you don't have to fool with them," he says.

Today, Mendocino County farmers and ranchers continue to install the drought-inspired systems for present needs as well as in preparation for dry years which they know will come again . . . someday.

Ruth Charters,
secretary-treasurer, Mendocino County Resource
Conservation District, Ukiah, Calif.

The Regrowth of Mount Saint Helens:

Fighting the Threat of Erosion

by Duane A. Bosworth,
head, Information Staff,
West Technical Service Center,
SCS, Portland, Oreg.

Tim McCabe,
photographer, Information
and Public Affairs, SCS,
Washington, D.C.

1 When Mount Saint Helens let go last May 18th, the blast force leveled 175 square miles of timber and ground cover. The volcano then dumped up to a foot of coarse pumice and fine ash on top.



3 Above, USDA's Forest Service and SCS jointly contracted to seed from the air about 20,000 acres in the upper watersheds of the Cowlitz,

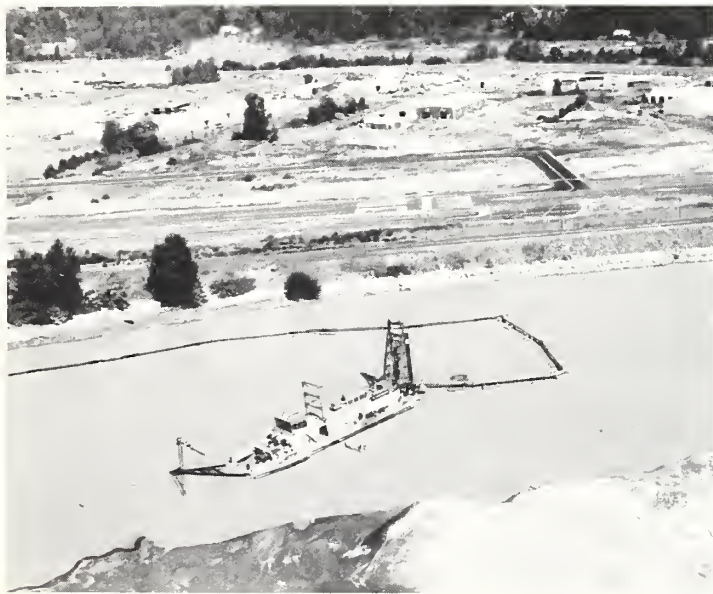
Toutle, and Lewis Rivers. The grass and legume cover on highly erosive soils is expected to reduce erosion by as much as 85 percent.



4 At left, Lyn Townsend (left), SCS woodland specialist and Government representative for the seeding project, and David Guenther, SCS range conservationist and project inspector, check the seeding mixture, which included annual and perennial ryegrass, timothy, creeping red fescue, clover, and birdsfoot trefoil at 39 pounds per acre. The seeding will help reduce downstream flood hazard and keep sediment out of the shipping lanes in the Columbia and Cowlitz Rivers.



2 The erosion potential of this area, normally covered with trees and other vegetation, zoomed from near zero to many tons per acre—as much as 308 tons per acre per year on steeper slopes. Soil Conservation Service specialists began to plan what they could do to reduce erosion on bare slopes where annual precipitation is 80 to 100 inches—mostly in the fall, winter, and spring.



5 At left, dredging operations also were undertaken to clear channels and reduce the probability of flooding during winter.



6 At right, the mud flow area and a segment of geologic interest due north of the mountain will probably be retained to study how nature will cope with the devastation.

Hurricane-Force Winds Sandblast California Community

by Dale R. Brogan

If you ask residents of Arvin, Calif., to describe the natural phenomenon that made their county a federally declared disaster area in 1977, you won't hear about the ever-portending earthquake. You will hear about one of the most devastating windstorms in California history, from which the small farming and ranching community has finally recuperated.

On December 19, 1977, an upper air disturbance overlying the southern San Joaquin Valley created winds that reached velocities exceeding 150 miles per hour. They lasted 4 days. During that time, there was a 15-hour period in which the wind velocity never fell below 100 miles per hour.

The windstorm devastated Kern County. County roads were buried in silt. Wooden telephone poles were snapped. Steel grid structures supporting electrical lines were bent to the ground, some with their cement foundations ripped out. Billboards and traffic signs were destroyed.

The State highway patrol and county fire department rescued stranded motorists throughout the storm. Five were killed in accidents due to poor visibility. Large trucks traversing State Highway 58 were flipped onto their sides. Effects of the storm were recorded 300 miles away—where silt was deposited on the State capitol building in Sacramento.

But it was the Arvin community and surrounding agricultural land that took the brunt of the storm. Office buildings and homes were destroyed or damaged. Roofs were missing, as well as fences, patio furniture, and plants. Cars were sandblasted down to shiny metal. Windows were blown out or took on a frosted look. Silt was everywhere.

The disastrous effect of the phenomenon on the land was intensified by 2 years of drought and grazing stress. Surrounding hillsides had little cover and were highly vulnerable to wind erosion.

The Arvin hillsides testified to the force of the wind and the source of sediment. Vegetation was stripped from thousands of acres. Soil losses in some areas were 2 feet deep down to bedrock. Cattle caught in the storm wandered aimlessly until they were trapped in a canal or against a fence, where they were covered up and suffocated by sediment. The Arvin-Edison Canal, the area's main source of irrigation water delivery, was completely filled with sediment for 5 miles. Vineyards were covered by deposited soil. Many orange groves were defoliated; bark had been sandblasted off tree limbs and trunks.

Within days after the storm, a multi-agency task force was formed to assess damages and develop and carry out a plan to restabilize the severely damaged watershed. The team consisted of representatives from the California Department of Forestry, U.S. Geological Survey, and Soil Conservation Service.



Aerial photographs were taken of the surrounding watersheds to identify areas needing erosion control treatment. About 16,000 acres of critically eroded watershed were identified as needing reseeding. The acreage was located in 31 separate areas, ranging in size from 17 to more than 5,000 acres. The sites were spread over an area 22 miles long and 14 miles wide.

Using the aerial maps, team representatives designed an aerial reseeding pattern. Funds were obtained to complete the reseeding under Section 216 of the 1950 Flood Control Act. Section 216 authorizes the use of Federal funds for emergency watershed treatment.

Three aircraft were used to apply 180,000 pounds of seed in 7 days. A special seed mixture of annual ryegrass and blando brome was prepared for the area. Ryegrass established quickly, providing short-term erosion control benefits. The blando

brome is a range grass well adapted to the area; it will provide permanent grass cover and erosion control.

In addition to the reseeding, \$60,000 was used to reshape and vegetate several major gullies. This will reduce the amount of sediment washed downstream to the valley floor and into the Arvin-Edison Canal.

Now, more than 2 years after the windstorm, life is back to normal in the community of Arvin. Homes and businesses have been rebuilt; farmland has been recovered and is producing a wide variety of crops. The damaged watersheds surrounding the community have been restored. The thousands of acres that were bare now have excellent vegetative growth, holding the soil in place. The 15 deep eroding gullies are now gently sloping drainageways, stabilized and safely carrying their intermittent flows.

The windblow project was the only one of its kind completed under the

Emergency Watershed Treatment Program in California. Most of the projects involved restoring watersheds in 13 counties damaged by floods. Nearly \$60 million was used in the emergency program.

Kern County received about \$2 million for 13 emergency projects, including the Arvin Windblow Project. The other 12 emergency projects included removing sediment and stabilizing the banks of various county drainageways.

Assistance was provided by the Pond Poso, Buena Vista, Eastern Kern, and Tehachapi Resource Conservation Districts.

Dale R. Brogan,
former district conservationist,
SCS, Bakersfield, Calif.

Far left, dust blown by hurricane-force winds covered Kern County, Calif., roads. Left, property damage and agricultural loss in Kern County were estimated at well over \$35 million. At right, within a week of the dust storm, the rains came and stayed 3 months. Bare hillsides quickly turned into gullies and mudslides blocked the highway.



Magic at Magnolia School

by Carolyn MacAbee

People who live near Magnolia School in New Orleans, La., say that the students' laughter sounds like music these days. What's all the laughter and happy chatter about, you say? Well, Magnolia, a school for the mentally and physically handicapped, has converted its 6-acre campus into an outdoor classroom and nature trail.

Encouraged by principal Joan Turcott and teacher, Ann Martin, the children have grown to a fuller appreciation of nature and love for their environment through working on the nature center. One excited child wrote, "The Nature Trail means so much to me. It has so many interesting trees in it, and I love bushes with pretty flowers on them. I like the birds that fly around, and I wish I could fly with them." Letting children come close to natural things is Magnolia School's goal.

Since 1977, the Soil Conservation Service and the Crescent Soil and Water Conservation District have worked with the school leaders and students to plan and build a variety of projects for outdoor learning.

The greenhouse, once in shambles, has been refurbished by staff, house parents, and students. Bromeliads, ferns, and all types of exotic plants and arrangements from the greenhouse can be purchased by visitors who tour the campus and outdoor classroom. As a part of this project, driftwood has been collected and the children have cleaned and finished it and mounted bromeliad plants on it.

The Nature Trail winds through the lush grounds of the campus where silver maple, magnolia, pecan, and lovely Japanese yew trees can be seen. Live oaks surround the picturesque main school building that was originally a plantation home. To



SCS District Conservationist Danny Clement shows students at Magnolia School that peanuts do grow under ground.

incorporate artwork in the Nature Trail, the students handcrafted plaques shaped like squirrels, hands, and birds and put them on trees on the campus.

All in all, there are 81 points of interest, including study sites, along the trail and in the campus classroom. Betty Borne, a teacher at Magnolia, recorded a voice-and-music tape that can be played during the walk along the trail and on the campus. The tape explains everything—for example, that a Japanese yew, whose foliage is poisonous, is not to be fed to the pet nanny goat, "Miss Letty."

Donated by Harry Post, chairman of the Crescent Soil and Water Conservation District Board, Miss Letty is a main attraction for the students and public, especially since she gave birth to two youngsters. The children take turns feeding and walking Miss Letty, but are careful not take her near the garden plots.

Most of the children at Magnolia had never seen food or fiber plants growing until Danny Clement, SCS district conservationist, helped them plant three garden plots of popcorn, peanuts, and cotton. The children watched the plants grow and then picked the fruit. The goat and gardens are part of the total outdoor classroom project.

"All of this is just a beginning," said Principal Turcott. "Magnolia School's outdoor classroom will soon have a waterfall, a pond, weeping willow trees, and tropical plants."

To see the children laughing, playing, rubbing freshly picked cotton across their cheeks, and hugging Miss Letty's baby goat—well, it's plain to see that a drab world has turned into one of beauty and love.

Carolyn MacAbee,
Comprehensive Employment and Training Act
employee, SCS, New Orleans, La.

New Publications

A Unified National Program for Flood Plain Management

by the U.S. Water Resources Council

This report is provided in response to Section 1302(c) of the National Flood Insurance Act of 1968 (Public Law 90-448). It sets forth a conceptual framework and identifies strategies for implementing a unified flood plain management plan. Report recommendations for Federal agencies include improving support of State and local agencies which implement flood plain management programs, accelerating flood plain management technical assistance, and incorporating flood plain management as a prerequisite for Federal activities affecting flood plains.

A limited number of copies is available from the Flood Plain Management and Special Projects Branch, River Basins Division, USDA-Soil Conservation Service, P.O. Box 2890, Washington, D.C. 20013.

An Annotated Bibliography on Planning and Management for Urban-Suburban Wildlife

by U.S. Department of the Interior, Fish and Wildlife Service

This publication is available for \$6.50 from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. (Stock No. 024-010-00547-5.)

Crop Residue Management Systems

by the American Society of Agronomy, the Crop Science Society of America, and the Soil Science Society of America

Crop residue management is the use of crop residues for soil protection or improvement. Additional uses of crop residues are possible, such as livestock feed or as a fossil fuel substitute.

This book is the proceedings of the crop residue management symposium sponsored by the three societies mentioned above. The symposium took place at the 1976 annual meeting of the three societies in Houston, Tex.

The objective of this book is to provide a current and complete evaluation of the factors involved in the use of crop residues for resource conservation and productivity, for livestock feed, and as a fossil fuel substitute.

Copies are available for \$9 from the American Society of Agronomy, 677 South Segoe Road, Madison, Wis. 53711. (ASA Special Publication No. 31.)

Clean Water Models

by the Soil Conservation Service

This is a collection of articles from the October, November, and December 1979 issues of *Soil Conservation* magazine on the seven Model Implementation Projects (MIP's). The MIP's are a 3-year test to demonstrate how a concentrated effort of cost sharing and technical assistance by the U.S. Department of Agriculture and the U.S. Environmental Protection Agency can help solve agriculture-related water quality problems.

Copies are available from your local SCS office.

A Bibliography for Small and Organic Farmers: 1920 to 1978

by the U.S. Department of Agriculture, Science and Education Administration—Agricultural Research

This bibliography contains 1,176 publications of long-term research by Agricultural Research scientists from 1920 to 1978 that relate to small farmer and organic farmer needs.

Many of these farmers have expressed a need for help in developing alternatives to today's cropping systems and cultural practices. This usually involves

reducing or excluding the use of chemical fertilizers and pesticides, and using instead untreated minerals, crop rotations, mulches, legumes, animal and municipal wastes, and green manures to supply nutrients and weed and pest controls.

The publications under each of the 19 subject areas are listed according to the year they were published, and are preceded by a brief summary of that subject area. Copies are available from Jack Kral, USDA-SEA-JPE-PPS, Room 215, Building 005, BARC-West, Beltsville, Md. 20705.

Structure Issues of American Agriculture

by the U.S. Department of Agriculture, Economics, Statistics, and Cooperatives Service

This book contains 36 essays that analyze important aspects of farm structure and some of the forces that have shaped our present agricultural system. It is intended as a resource to be used by citizens and policymakers in considering the future of farming.

Copies are available from the Economics, Statistics, and Cooperatives Service, Publications Office, Room 0054, South Agriculture Building, Washington, D.C. 20250.

Effectiveness of Soil and Water Conservation Practices for Pollution Control

by the U.S. Environmental Protection Agency

This report discusses the potential water quality effects of soil and water conservation practices in the United States to control sediment, nutrients, and pesticides (from nonirrigated cropland). According to the report, soil and water conservation practices are agricultural practices with potential for being best management practices. Although

these conservation practices are directed to erosion and water control rather than direct control of nonpoint source pollutants, their use in specific situations could provide environmental managers with an additional tool for controlling pollutants of potential concern.

Copies are available for \$24 from the National Technical Information Service, Springfield, Va. 22161. (Order No. PB 80-122-237.)

208 Data Clearinghouse

by the U.S. Environmental Protection Agency

This publication is a listing of technical reports reviewing all aspects of water quality management. The subjects range from actual work plans of local agencies and nonpoint source best management practices to public participation. The subjects are broken down into separate entries which are categorized and numbered. Each entry includes bibliographic information describing the document and its content, the name of the agency which produced the document, and frequently a brief abstract describing the content.

Copies are available from the U.S. Environmental Protection Agency, WH-554, 401 M Street, S.W., Washington, D.C. 20460.

Save Fuel . . . Use Conservation Tillage

by the Soil Conservation Service

This color pamphlet summarizes the advantages of conservation tillage systems, emphasizing the fuel savings, which can be as high as 80 percent. The illustrations show no-till planting equipment, what a no-till crop will look like, and the amount of residue left on the soil surface.

Copies are available from local and State Soil Conservation Service offices.

Continued on page 16.

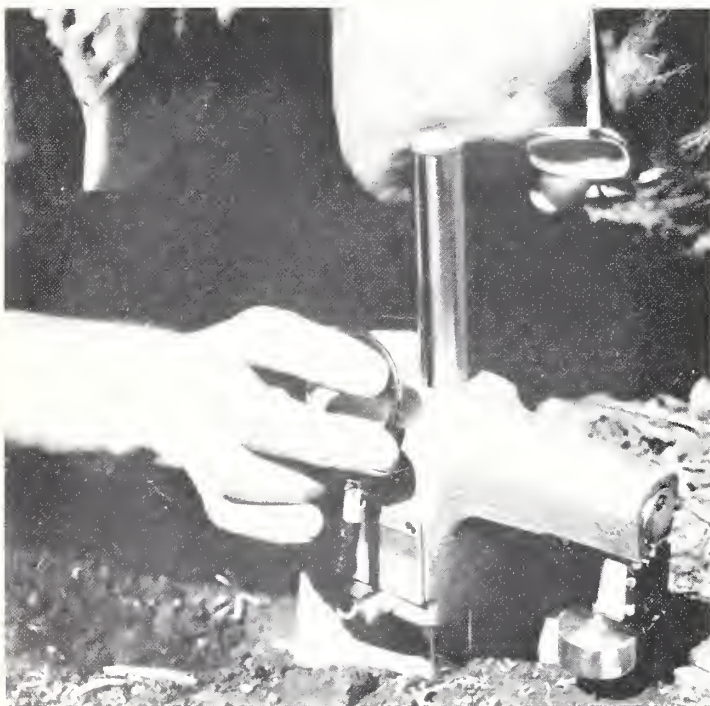
CONSERVATION Research Roundup

New Method Measures Soil Shear Strength

Dr. Joe Bradford, soils physicist, USDA's Science and Education Administration-Agricultural Research, Purdue University, and Dr. Robert Grossman, Soil Conservation Service, National Soil Survey Laboratory, Lincoln, Nebr., are testing a new method of measuring seasonal changes in strength characteristics of the soil surface.

Using a "Swedish Fall-cone" to measure soil shear strength, the scientists expect to more accurately predict erodibility of soils. The field measurements are simple and rapid.

The device allows them to measure shear strength in the upper 1/2 to 2 cm, the "skin of the soil." By dropping the cone-like device into the soil surface, the scientist can measure depth of penetration. The farther the cone penetrates, the weaker the shear strength; thus, a more erodible soil.



Scientist Joe Bradford adjusts Swedish Fall-cone before testing soil shear strength. Researchers hope the new method will more accurately depict soil erodibility for the soil loss equation.

The test is made when the soil surface is very wet. Tensiometers are placed at 2 cm depth to record the relative wetness.

Tests to date range from 50 to 500 g/cm², a tenfold difference in soil shear strength. The moisture state was wet or very moist. The range in tension at 2 cm was from 0.02 to 0.07 bars.

Bradford and Grossman are testing soils in Iowa and Nebraska. The Nebraska research is mainly on Sharpsburg soils; in Iowa, Monona and Ida soils are being studied. Tests were made in early March and late April. The scientists believe more accurate "K" factors can be developed if shear strengths are determined at the times most important to erosion.

If the new system proves reliable, it could be more extensively tested within 2 years and be worked into SCS field use within 5 years, according to Grossman.

An Annual Alfalfa?

An "annual" alfalfa may soon give upper Midwest farmers an optional source of nitrogen for fertilizing their corn crops. Research is well along in developing a nondormant strain of alfalfa with increased nitrogen-fixing ability. Greater use of alfalfa in crop rotations could lead to significant conservation of natural gas needed to produce commercial nitrogen fertilizers.

Plant geneticist Donald K. Barnes explains that the nondormant strains do not enter the usual resting stage at summer's end to store carbohydrates as food for overwintering. Unlike winterhardy varieties, these strains sustain vigorous vegetative growth and keep fixing nitrogen for at least another month into autumn. They also have larger roots with higher levels of stored nitrogen. By the end of the season they will have produced more forage and stored twice as much nitrogen in their roots as ordinary alfalfa.

Dr. Barnes and plant physiologists Gary H. Heichel and Carroll P. Vance are members of an alfalfa nitrogen-fixation research team with USDA's Science and Education Administration, based at the University of Minnesota, St. Paul.

High prices for fertilizer may make it economically worthwhile for farmers to consider planting a nondormant alfalfa for single-season cropping. The research team envisions a system wherein nondormant alfalfa would be sown with oats or another small grain, then harvested for high-quality silage. Subsequently, the farmer would harvest two crops of alfalfa hay or silage and then, before winter, turn the stand under to make its generous store of nitrogen available to the next crop in the rotation.

Management Tips

Readers are invited to submit "Management Tips" to the editor, *Soil and Water Conservation News*, Soil Conservation Service, P.O. Box 2890, Washington, D.C. 20013

A superior "annual" alfalfa holds potential for increasing the frequency of growing a legume in a rotation. More rotation of crops would result in improved soil texture and lessened erosion. Furthermore, crop rotations that include an alfalfa with higher levels of residual nitrogen would trim the application rates of purchased nitrogen fertilizer in the upper Corn Belt.

"The ultimate economic impact of this research," says Dr. Heichel, "is that if only 10 percent of the Nation's corn crop was annually grown in rotation with alfalfa, the fertilizer saved would reduce the demand for natural gas by 28 billion cubic feet. That's enough gas to heat 440,000 homes in Minnesota."

Plans call for the release of a non-dormant alfalfa variety in the mid-1980's.

Russell P. Kaniuka,
public information officer,
SCS, Orono, Maine

Soil and Water Research Facility Dedicated

The U.S. Department of Agriculture's new Appalachian Soil and Water Conservation Research Laboratory in Beckley, W. Va., was dedicated last August.

Scientists at the laboratory, which will be administered by USDA's Science and Education Administration, will conduct research on a variety of problems associated with hill-land agriculture and reclamation of strip-mined and other disturbed land.

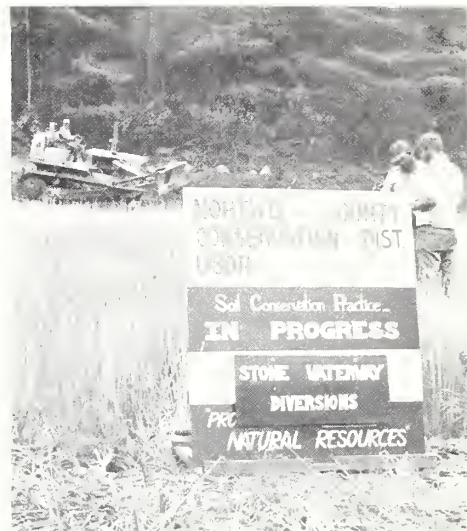
It Helps to Advertise

The idea for a sign "advertising" conservation practices resulted from a conversation between a Northumberland County, Pa., farmer, a conservation district director, and the Soil Conservation Service district conservationist. The farmer was wondering about "someone moving a lot of soil on a farm outside of town." As it turned out, the farm was owned by a vegetable farmer who, with district and SCS assistance, was installing a terrace system.

At the next Northumberland County Conservation District meeting it was decided that a member of the district Comprehensive Employment and Training Act (CETA) crew would construct and paint a sign.

The sign was constructed so that it could be easily transported and erected at any construction site. To make it usable at various construction sites, the sign has bolt-on panels for each major conservation practice in the county, including stripcropping, diversions, terraces, and stone waterways. The sign is placed alongside the highway and is used only at sites where the construction is visible from a road.

SCS District Conservationist Tom Matticks says, "The major purpose of the sign is to make area farmers and the general public more aware of the conservation district and the work it does. The sign itself doesn't sell conservation like a good conservationist does, but it helps."



SCS Technician Jack Clark (right) and Farmer Ken Broschius stand behind a sign on the Northumberland County, Pa., farm which explains the soil conservation work in progress: stone waterway and diversions.

Farm Editors Can Go to the Source

A list of outstanding conservation farmers in each area of Missouri has been mailed to the State's newspaper farm editors, along with a State highway map marked to show where each farmer lives.

A short biography of each farmer includes addresses and telephone numbers, facts about the farm and conservation plan, and organizational affiliations. Editors are invited to interview farmers on the list when they have questions about soil and water conservation. Names of local Soil Conservation Service district conservationists also are included.

Many of the farmers listed are district officials; many also are Goodyear Conservation Award winners.

Moving?

Send present mailing label and
new address including zip code to:

U.S. Department of Agriculture
Soil Conservation Service
P.O. Box 2890, Room 0054-S
Washington, D.C. 20013

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AGR 101



Meetings

November	9-12	National Agricultural Bankers Conference, Dallas, Tex.
	9-13	The Irrigation Association, Honolulu, Hawaii
	10-17	National Grange, Cedar Rapids, Iowa
	12-14	Future Farmers of America, Kansas City, Mo.
	14-17	American Association of State Highway and Transportation Officials, Las Vegas, Nev.
	16-19	American Society of Farm Managers and Rural Appraisers, Phoenix, Ariz.
	16-19	National Association of State Universities and Land-Grant Colleges, Atlanta, Ga.
	16-19	National Forest Products Association, Rancho Mirage, Calif.
	16-20	American Institute of Chemical Engineers, Chicago, Ill.
	17-20	Geological Society of America, Atlanta, Ga.
December	22-25	American Society of Landscape Architects, Denver, Colo.
	30-December 5	American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America, Detroit, Mich.
December	1-2	American Society of Agricultural Engineers, Chicago, Ill.
	1-4	National Farmers Organization, Cincinnati, Ohio
	2-4	Western Forestry and Conservation Association, Victoria, British Columbia, Canada
	8-12	American Geophysical Union, San Francisco, Calif.
January	11-15	American Farm Bureau Federation, New Orleans, La.
	12-15	North American Game Breeders and Shooting Preserve Association, Springfield, Ill.
	15-16	National Council of Farmer Cooperatives, Hollywood, Fla.
	18-19	Land and Water Exposition, Land Improvement Contractors of America, Des Moines, Iowa

Level-Basin Irrigation: A Method for Conserving Water and Labor

by the U.S. Department of Agriculture, Science and Education Administration

Level-basin irrigation is a gravity method whereby water is supplied to level soil surfaces over a short period of time. This publication explains the advantages of the method, its limitations, land preparation, and its basic principles and design. It presents an evaluation of the method, describes cultural practices, and explains the importance of good management.

Copies are available for \$1.20 from the Superintendent of

Documents, U.S. Government Printing Office, Washington, D.C. 20402. (Stock No. 001-000-03912-1.)

Report and Recommendations on Organic Farming

by the U.S. Department of Agriculture

This report is a condensation of data and information compiled by the USDA Study Team on Organic Farming, which conducted a study of organic farming in the United States and Europe. The team assessed the nature and activity of organic farming both here and abroad; investigated the motivations of why farmers

shift to organic methods; explored the broad sociopolitical character of the organic movement; assessed the nature of organic technology and management systems; evaluated the level of success of organic farmers and the economic impacts, costs, benefits, and limitations to organic farming; identified research and education programs that would benefit organic farmers; and recommended plans of action for implementation.

Single copies are available from the U.S. Department of Agriculture, Science and Education Administration, Information Staff, Publications Request and Distribution, Washington, D.C. 20250.

Recent Soil Surveys Published

by the Soil Conservation Service

Arkansas: Conway County.
Colorado: Elbert County.
Kentucky: Christian County.
Montana: Stillwater Area.
Nevada and Arizona: Virgin River Area, Parts of Clark and Lincoln Counties, Nev., and Part of Mohave County, Ariz.
Ohio: Lucas County.
South Carolina: Marion County.
Washington: Okanogan County Area.